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10/621,306	07/18/2003	Won-Hee Choe	030681-541	2519

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EXAMINER

BURLESON, MICHAEL L

ART UNIT	PAPER NUMBER
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2625

MAIL DATE	DELIVERY MODE
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06/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/621,306

Applicant(s)

CHOE ET AL.

Examiner

Michael Burleson

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5,9,11-13,17,19-24,28,30,31,35,37 and 38 is/are rejected.
- 7) ☒ Claim(s) 6-8,10,14-16,18,25-27,29,32-34 and 36 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08); Paper No(s)/Mail Date :01/13/2005, 06/06/2005, 10/11/2005 and 08/21/2006.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Information Disclosure Statement

2. The information disclosure statement (IDS) were submitted on 01/13/2005, 06/06/2005, 10/11/2005 and 08/21/2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5,9,11,13,17,19-24,28,30,31,35,37 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamada et al. US 2003/0161530.
3. Regarding claim 1, Yamada et al. teaches a method for adaptively enhancing a color comprising: deriving a saturation component from an input image, determining a

saturation enhancement function used to enhance the saturation of the input image according to a predetermined reference value; changing the derived saturation component using the saturation enhancement function; generating an output color value by synthesizing the changed saturation component and other components of the input image (page 2, paragraph 0037). Yamada et al. teaches of generating an output image based upon the output color value (page 2, paragraph 0038).

4. Regarding claim 2, Yamada et al. teaches converting an input image represented in a first color space into an image in a second color space where the saturation of the input image can be extracted; and deriving the saturation component from the converted input image (page 3, paragraph 0065).

5. Regarding claim 3, Yamada et al. teaches wherein according to the saturation enhancement function, the amounts by which the saturation of an input pixel in a low-saturation region is enhanced and by which the saturation of an input pixel in a high-saturation region are different (page 4, paragraph 0073).

6. Regarding claim 4, Yamada et al. teaches wherein the saturation enhancement function is determined based on the characteristics of the input image (page 4, paragraph 0073).

7. Regarding claim 5, Yamada et al. teaches wherein step (b) comprises: extracting an average saturation of the input image from color signals of the input image; determining a saturation enhancement function determining variable based on the average saturation and determining the saturation enhancement function based on the

saturation enhancement function determining variable (page 3, paragraph 0066-page 4, paragraph 0073).

8. Regarding claim 9, Yamada et al. teaches wherein a maximum of the saturation enhancement function determining variable is determined based upon the visual perception characteristics of a predetermined color difference formula in a CIEL*a*b* color space (page 3, paragraph 0066-0068).

9. Regarding claim 11, Yamada et al. teaches wherein the second color space is an HSV color space or a YCbCr color space (page 3, paragraph 0065).

10. Regarding claim 12, Yamada et al. teaches wherein the saturation enhancement function in step (b) is determined based upon a preferred saturation enhancement value input from a user (page 4, paragraph 0074).

11. Regarding claim 13, Yamada et al. teaches wherein step (b) comprises: receiving the preferred saturation enhancement value from the user (page 4, paragraphs 0074 and 0075); determining a saturation enhancement function determining variable based upon the preferred saturation enhancement value (page 4, paragraph 0075) and determining the saturation enhancement function based upon the saturation enhancement function determining variable (page 4, paragraph 0075)

12. Regarding claim 17, Yamada et al. teaches wherein a maximum of the saturation enhancement function determining variable is determined based upon the visual perception characteristics of a predetermined color difference formula in a CIEL*a*b* color space (page 3, paragraph 0066-0068).

13. Regarding claim 19, Yamada et al. teaches an apparatus for adaptively enhancing the color of an image, comprising: a saturation component deriving unit for deriving a saturation component from an input image (saturation calculation block (11)); a saturation enhancement function determining variable calculator for determining a saturation enhancement function used to enhance the saturation of the input image based upon a predetermined reference value (saturation parameter setting block (12)); a saturation enhancement unit for changing the derived saturation component using the saturation enhancement function (saturation conversion block (13)); and a saturation component synthesizing unit for synthesizing the changed saturation component and other components of the input image and generating an output image based upon the synthesized components (saturation conversion block (13)) (page 2, paragraph 0037).
14. Regarding claim 20, Yamada et al. teaches a first color converter for converting the input image represented in a first color space into an image in a second color space where the saturation of the input image can be extracted (saturation calculation block (11)) (page 3, paragraph 0065); and a second color converter for converting the output image represented in the second color space into an image in the first color space (saturation calculation block (11)) page 5, paragraph 0087).
15. Regarding claim 21, Yamada et al. teaches a frame saturation average calculator which calculates an average saturation of the input image that is provided to the saturation enhancement function determining variable calculator as the reference value (saturation conversion parameter setting block (12)) page 4, paragraph 0075).

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16. Regarding claim 22, Yamada et al. teaches wherein the saturation enhancement function determining calculator determines the saturation enhancement function by which the amounts by which the saturation of an input pixel in a low-saturation region is enhanced and by which the saturation of an input pixel in a high-saturation region is enhanced are different (page 4, paragraph 0073).

17. Regarding claim 23, Yamada et al. teaches wherein the saturation enhancement function determining variable calculator determines the saturation enhancement function based upon the characteristics of the input image (page 4, paragraph 0073).

18. Regarding claim 24, Yamada et al. teaches wherein the reference value is the average saturation of the input image, and the saturation enhancement function determining variable calculator determines the saturation enhancement function determining variable based upon the average saturation of the input image and determines the saturation enhancement function based upon the saturation enhancement function determining variable (page 3, paragraph 0066-page 4, paragraph 0073).

19. Regarding claim 28, Yamada et al. teaches wherein a maximum of the saturation enhancement function determining variable is determined based upon the visual perception characteristics of a predetermined color difference formula in a CIEL*a*b* color space (page 3, paragraph 0066-0068).

20. Regarding claim 30, Yamada et al. teaches wherein the saturation enhancement function determining variable calculator determines the saturation enhancement

function based upon a preferred saturation enhancement value input from a user (page 4, paragraph 0074).

21. Regarding claim 31, Yamada et al. teaches wherein the reference value is a preferred saturation enhancement value from the user (page 4, paragraphs 0074 and 0075); and the saturation enhancement function determining variable calculator determines the saturation enhancement function determining variable based upon the preferred saturation enhancement value from the user (page 4, paragraph 0075) and the saturation enhancement function based upon the saturation enhancement function determining variable (page 4, paragraph 0075).

22. Regarding claim 35, Yamada et al. teaches wherein a maximum of the saturation enhancement function determining variable is determined based upon the visual perception characteristics of a predetermined color difference formula in a CIEL*a*b* color space (page 3, paragraph 0066-0068).

23. Regarding claim 37, Yamada et al. teaches wherein the second color space is an HSV color space or a YCbCr color space (page 3, paragraph 0065).

24. Regarding claim 38, Yamada et al. teaches a computer readable recording medium on which a program enabling the method of claim 1 to be executed in a computer or digital display device is recorded (page 2, paragraph 0030).

Allowable Subject Matter

25. Claims 6-8,10,14-16,18,25-27,29,32-34 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Burleson whose telephone number is 571-272-7460. The examiner can normally be reached Monday through Friday from 8:30 A.M. to 5:00 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler Lamb can be reached on 571-272-7406.

Michael Burleson
Patent Examiner

Michael Burleson
Patent Examiner
Art Unit 2625

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Mlb
January 20, 2007